UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/030,772	04/09/2002	Klaus Korner	PTK0007	6415

7590 12/22/2003

EXAMINER	
STOCK JR, GORDON J	

ART UNIT	PAPER NUMBER
2877	

Baker & Daniels
Suite 800
111 East Wayne Street
Fort Wayne, IN 46802

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/030,772	KORNER ET AL.	
	Examiner	Art Unit	
	Gordon J Stock	2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-50* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-50* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *09 March 2002* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *1001;0602* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "202" has been used to designate both a grating and/or aperture. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance. Also clarification in the specification is suggested.

Specification

2. A substitute specification including the claims is required pursuant to 37 CFR 1.125(a) because a substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

A substitute specification filed under 37 CFR 1.125(a) must only contain subject matter from the original specification and any previously entered amendment under 37 CFR 1.121. If the substitute specification contains additional subject matter not of record, the substitute specification must be filed under 37 CFR 1.125(b) and (c)

3. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

Claim Rejections - 35 USC § 112 and - 35 USC § 101

4. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

5. **Claims 1-50** are rejected under 35 U.S.C. 112 second paragraph as being indefinite, for **claim 16** claims both an apparatus and the method steps of using an arrangement/apparatus for 3D recording. A single claim which claims both an apparatus and the method steps of using the apparatus is indefinite under 35 U.S.C. 112, second paragraph. *In Ex parte Lyell, 17 USPQ2d 1548 (Bd. Pat. App. & Inter. 1990).* **Claims 17-27** are rejected as well for their dependence on **Claim 16**.

6. **Claims 1-15 and 28-50** are generally narrative and indefinite, failing to conform with current U.S. practice. They appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

7. Regarding **claims 1-15**, the word "means" is preceded by the word(s) "elementary" in an attempt to use a "means" clause to recite a claim element as a means for performing a specified function. However, since no function is specified by the word(s) preceding "means," it is impossible to determine the equivalents of the element, as required by 35 U.S.C. 112, sixth paragraph. See *Ex parte Klumb*, 159 USPQ 694 (Bd. App. 1967).

8. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by

"such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, **claim 2** recites the broad recitation detection arrays, and the claim also recites "in particular CCD arrays" which is the narrower statement of the range/limitation; **claim 5** recites the broad recitation arranged on piezo control means, and the claim also recites "in particular for synchronous movement with a distance change" which is the narrower statement of the range/limitation; **claim 10** recites the broad recitation moving grating, and the claim also recites "in particular a geometric shadow grating" which is the narrower statement of the range/limitation; **claim 12** recites the broad recitation observation elements, and the claim also recites "in particular elements of a detector, in particular of a CCD array" which is the narrower statement of the range/limitation; **claim 13** recites the broad recitation a specific signal pattern, and the claim also recites "in particular a signal maximum and in particular an absolute signal maximum" which is the narrower statement of the range/limitation.

9. The term "large number" in **claim 10** is a relative term which renders the claim indefinite. The term "large number" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. "Large number" renders the quantity of observation elements indefinite.

10. **Claims 16-27** are rejected under 35 U.S.C. 101 based on the theory that **claim 16** is directed to neither a "process" nor a "machine," but rather embraces or overlaps two different statutory classes of invention set forth in U.S.C. 101 which is drafted so as to set forth the statutory classes of invention in the alternative only. *Id.* at 1551. **Claims 17-27** are rejected as well for their dependence on **Claim 16**.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. **Claims 1, 7, and 11** are rejected under 35 U.S.C. 102(b) as being anticipated by **Sugaya et al. (5,754,299).**

As for **claims 1, 7, and 11** Sugaya discloses a two sets of imaging optics (between 106 and 103 and to 113 and 112 of Fig. 19) with moving elementary means (Figs. 1, 2; Fig. 19: 121, 118, and 115) and this system comprises illumination (Fig. 19, 103) with a large number of observation elements (several lenses within Fig. 19).

13. **Claims 1, 3, 7, 8, 11, 12, 13, 14** are rejected under 35 U.S.C. 102(b) as being anticipated by **Corby, Jr. (4,687,326).**

As to **claims 1, 3, 7, 8, 11, 12, 13, 14,** Corby in a camera discloses two systems one for projection to the object and the other to detect the object (Fig. 3); objectives (33, 35, 36 of Fig. 3); elementary means that move, a rotating code disk that makes coded rays thus there are a large number of lighting emitting elements; that one system is for illumination; the observation system

comprises a large number of observation elements (Fig. 3: 36, 34, 16, 35); that there are regions of observation elements for the camera comprises a linear array; the detector output has an associated evaluation unit that signals surface recording because of a certain pattern (Fig. 7); the evaluation unit determines coordinates as function of position of moving means (Figs. 4 and 6).

14. **Claims 1, 7, 8, and 15** are rejected under 35 U.S.C. 102(b) as being anticipated by **Benedetti et al. (6,016,367)**.

As for **claims 1, 7, 8, 15**, Benedetti discloses the following: two imaging systems with imaging optics facing the object (Fig. 1: 11 and 17); an observation system with elementary means (Fig. 1: 12); an illumination system that comprises a large number of light emitting elements (Fig. 1: 12); and the setup with lens 17 suggests the pupil is in the focal plane of the imaging optics of the illumination system since lens 17 both images and illuminates.

Claim Rejections - 35 USC § 103

15. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

16. **Claim 28, 29, 32-37** are rejected under 35 U.S.C. 103(a) as being unpatentable over **Corby Jr. (4,687,326).** As for **claims 28, 29, 32-37,** Corby discloses at least one radiation source having an array of beams with a rotating code disk as a structured light emitting array with an illumination objective (Fig. 3, 33) with one imaging beam path with at least one imaging objective (36 of Fig. 3) with an imaging stage, a support for the object; there's an aperture (Fig. 3, 24); the disk rotates and is arranged flat and therefore parallel; the movement of the disk is in

communication with the receiver (Fig. 7); that the array is at least one partial region is a disk that rotates with transparent sectors. As for color cameras, Corby discloses that an object's color may strongly differ with its surroundings and to simultaneously examine range and luminance information (col. 1, lines 35-45) Therefore, it would be obvious to one skilled in the art to have the system comprise a color camera in order to examine luminance information. As for the position of the pupil of the objective and the position of images these are optimized arrangements of parts of the invention. Therefore the particular arrangement would have been obvious to one of ordinary skill in the art at the time the invention was made to since it has been held that rearranging parts of an invention involves only routine skill in the art. *In re Japikse, 86 USPQ 70*

Allowable Subject Matter

17. **Claims 2-6, 9, 10, 30, 31, 38-50** would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

As to **claim 2**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for three-dimensional object recording "two imaging systems represent both observation systems," in combination with the rest of the limitations of **claims 2-6.**

As to **claim 9**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for three-dimensional recording "a light emitting means exciter circuit is provided in order to at least partially simulate movement as virtual movement by a predetermined excitation pattern" in combination with the rest of the limitations of **claim 9.**

As to **claim 10**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an apparatus for three-dimensional recording "a moving grating," in combination with the rest of the limitations of **claim 10.**

As to **claim 30**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording "the light emitting array is in the form of an electronically controllable line grating," in combination with the rest of the limitations of **claims 30-31.**

As to **claim 38,** the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording a receiver array with four channels whereas the fourth channel is an NIR channel, in combination with the rest of the limitations of **claim 38.**

As to **claim 39**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording a structure-light-emitting array has an effective aperture stop and a receiver array with an effective aperture stop, in combination with the rest of the limitations of **claims 39-44.**

As to **claim 45**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording two imaging objectives parallel and associated with a respective receiver array with each array with a respective movement system, in combination with the rest of the limitations of **claim 45.**

As to **claim 46**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording two imaging objectives parallel associated with respective receiver array with each one having at least one associated movement system, in combination with the rest of the limitations of **claim 46.**

As to **claim 47**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording two imaging objectives parallel each associated with a respective receiver array, in combination with the rest of the limitations of **claim 47.**

As to **claim 48,** the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording a first and a second objective with each being associated with a respective receiver array with the first and second receiver array structured in three dimensions and each have at least two receiver surfaces on surfaces which are separated in three dimensions, in combination with the rest of the limitations of **claim 48.**

As to **claim 49**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording the receiver array is a CCD matrix camera, in combination with the rest of the limitations of **claim 49.**

As to **claim 50**, the prior art of record, taken alone or in combination, fails to disclose or render obvious in an arrangement for 3d recording the receiver array is a CMOS matrix camera, in combination with the rest of the limitations of **claim 50.**

Fax/Telephone Numbers

If the applicant wishes to send a fax dealing with either a proposed amendment or a discussion with a phone interview, then the fax should:

1) Contain either a statement "DRAFT" or "PROPOSED AMENDMENT" on the fax cover sheet; and

2) Should be unsigned by the attorney or agent.

This will ensure that it will not be entered into the case and will be forwarded to the examiner as quickly as possible.

Papers related to the application may be submitted to Group 2800 by Fax transmission. Papers should be faxed to Group 2800 via the PTO Fax machine located in Crystal Plaza 4. The form of such papers must conform to the notice published in the Official Gazette, 1096 OG 30 (November 15, 1989). The CP4 Fax Machine number is: **(703) 872-9306**

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gordon J. Stock whose telephone number is (703) 305-4787. The examiner can normally be reached on Monday-Friday, 10:00 a.m. - 6:30 p.m.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

gs
December 15, 2003

Zandra V. Smith
Primary Examiner
Art Unit 2877